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A METHOD AND SYSTEM FOR EFFICIENTLY DRAWING NURBS SURFACES FOR 3D GRAPHICS

ABSTRACT OF THE DISCLOSURE

The present invention comprises a computer implemented process and system for rendering curves or surfaces as 3D graphics on a display. The system of the present invention includes a computer system having a processor, a bus, and a 3D graphics rendering pipeline. The curves or surfaces are modeled by non-uniform rational B-splines (NURBS). The process of the present invention functions by receiving a NURBS model for rendering from a software program running on the host processor. The NURBS model defines a curve or surface. The process of the present invention efficiently converts the NURBS model to a Bezier model using the hardware of the graphics rendering pipeline. The Bezier model describes the same curve or surface. The process of the present invention subsequently generates a plurality of points on the curve or surface using the Bezier model and the graphics rendering pipeline. The points are then used by the graphics rendering pipeline to render the curve or surface defined by the Bezier model. Alternatively, a NURBS model is directly evaluated into a plurality of points on a curve or surface, and in turn, rendered into the curve or surface. This direct rendering of the NURBS model is implemented using the graphics rendering pipeline.